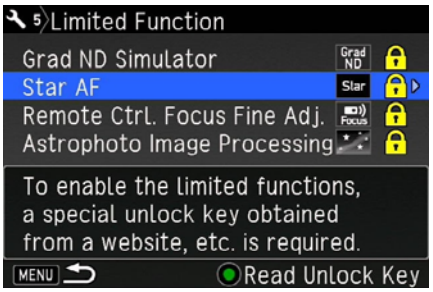
Astrophoto Assist User's Manual

Function Overview

- "Astrophoto Assist" is a premium function that packages "Star AF", "Remote Control Focus Fine Adjustment", and "Astrophoto Image Processing" features. By loading the unlock key for "Astrophoto Assist" in [Limited Function] of the 5 menu, "Star AF", "Remote Control Focus Fine Adjustment", and "Astrophoto Image Processing" become available.



"Limited Function" screen

Star AF

Remote Control Focus Fine Adjustment

Astrophoto Image Processing

Star AF

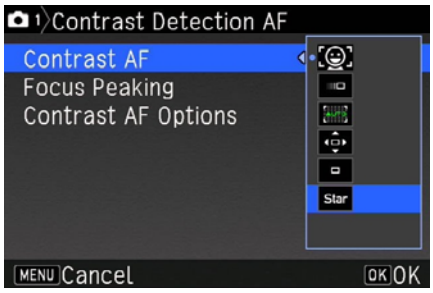
Function Overview

- With "Star AF", the camera automatically focuses on stars which are generally difficult subjects to focus on. Subjects other than stars are not supported.
  Make sure to securely mount the camera on a tripod, etc.
  * This function works only with autofocus lenses.
  * This function can be used only with Live View.

Preparation for Shooting

- Set [Contrast AF] to Star.

Select [Contrast Detection AF] in the 1 menu.



Select Star in [Contrast AF].

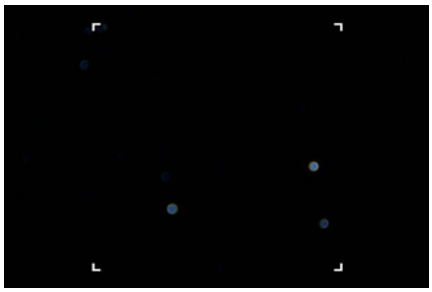
Star AF

Shooting Procedures

1. Switch the camera to Live View.
2. Adjust the angle of view (zoom) and composition so that the desired stars are in the AF frame. Make sure only stars are in the AF frame.

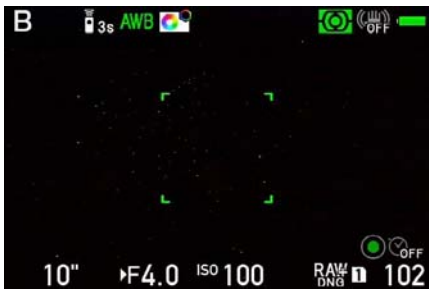
"Star AF" mode screen

3. Secure the camera to a tripod, etc. to make sure it does not move.
4. Either press the shutter release button halfway, press the AF button, or press the shutter release button on the remote control unit to start focusing.
5. The AF active area is magnified during focusing. (Focusing takes time. Keep the camera still until it is complete.)



Screen during focusing

6. When focusing is complete, the AF frame turns green and the focus is locked. (Do not operate the lens after focusing is complete.)



Screen after focusing is complete

7. Press the shutter release button fully or press the shutter release button on the remote control unit to release the shutter. When the AF frame is green (focus is locked), autofocus is not performed even if the shutter release button is pressed halfway.

- To unlock the focus, press the MENU button, or press the shutter release button halfway and then release it.
  The AF frame color returns from green to white (the state it was in before "Star AF" was started).

Caution

- Focusing takes approx. 10 to 30 seconds.
- When taking multiple frames, switch to manual focus after focusing is complete.
- If autofocus is complete but the stars are not in focus, the AF frame turns red and then returns to white after a certain amount of time passes.
- Focusing may fail in locations with ambient brightness (significant light pollution, etc.) or if you cannot see stars with the naked eye.
- If the stars still are not in focus after using "Star AF" multiple times, try adjusting the composition slightly or making other adjustments.

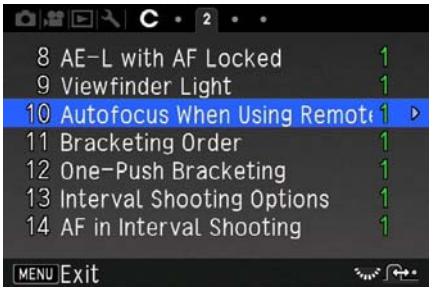
Remote Control Focus Fine Adjustment

Function Overview

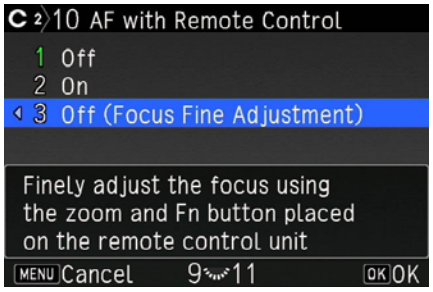
- "Remote Control Focus Fine Adjustment" is a function to fine-tune the focus with the optional Remote Control Waterproof O-RC1 without operating the lens or camera. This function is useful for astrophotography, macro shooting, and other situations where direct contact with the lens makes subtle focusing difficult. Make sure to securely mount the camera on a tripod, etc.
  * This function works only with autofocus lenses.

Preparation for Shooting

- Remote Control Waterproof O-RC1
- Set [AF with Remote Control] in the Custom Setting menu to [Off (Focus Fine Adjustment)].



Select [Autofocus When Using Remote Control] in the C2 menu.



Select [Off (Focus Fine Adjustment)] in [AF with Remote Control].

Remote Control Waterproof O-RC1

Shooting Procedures

1. Set the drive mode to a mode for remote control use ([Remote Control], [Remote Control (3 sec. delay)], [Remote Continuous Shooting], etc.).

Drive menu
[Remote Control]

Drive menu
[Remote Control (3 sec. delay)]

Drive menu
[Remote Continuous Shooting]

2. Set the focus mode switch for the camera and lens to AF.
3. Press the zoom button on the remote control unit to change the focus to the near side, or the Fn button to change it to the far side.
4. Press each button as many times as necessary until the subject is in focus. (The focus does not continue changing even if the button is pressed and held.)
5. Press the shutter release button on the remote control unit to release the shutter.

Caution

- Both the optical viewfinder and Live View are available for shooting. It is recommended to use the magnified view with Live View for checking the focus accurately.
- The focus may not change when pressing the button once depending on the lens status. Press the button multiple times until the focus changes.
- Each time the button is pressed, the focus changes slightly. For quick focusing, first roughly set the focus manually.
- If you try to release the shutter other than with the remote control unit, autofocus may be activated unintentionally.

Astrophoto Image Processing

Function Overview

"Astrophoto Image Processing" is a function that allows you to select and adjust new image processing options for astrophotography and save the processed image as a new JPEG file. The following six processing options are provided: [Shading Correction], [Uneven Correction], [Background Darkness], [Star Brightness], [Celestial Body Clarity], and [Color Fringe Correction].

Processing Procedures

1. Display the image to apply "Astrophoto Image Processing" to in the single image display, press the down button of the four-way controller to display the playback mode palette, and select [Astrophoto Image Processing].

Playback mode palette

2. Select the image processing option to use and adjust each parameter.
   If [RESET ALL] is executed on the "Astrophoto Image Processing" selection screen, all six image processing settings are reset to their default values (no image processing). If [RESET] is executed on the image processing parameter setting screen, each selected setting is reset to its default value.

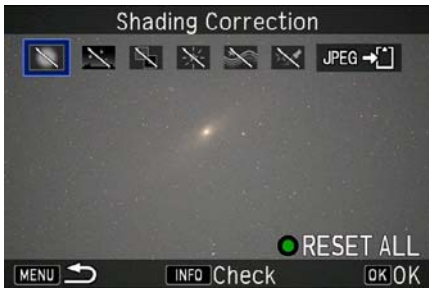


Image processing selection screen

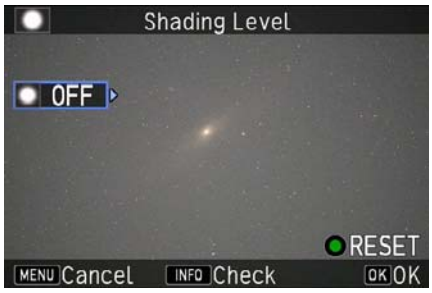


Image processing parameter setting screen

3. Each setting is reflected each time it is changed. To hide the icons, press the INFO button. The icons are hidden while the button is pressed.
4. When all image processing settings are complete, select [Save in JPEG] to save the image as a new file.

- "Astrophoto Image Processing" saves the most recent parameter settings.
  When applying image processing to a different image, reset the settings as necessary.

Caution

- "Astrophoto Image Processing" can be applied to RAW or JPEG images captured on this camera. "Astrophoto Image Processing" only processes JPEG images, so when a RAW image is selected, the image is first developed into a JPEG image in the camera under the conditions at the time of shooting, and then that JPEG image is processed.
- "Astrophoto Image Processing" cannot be directly applied to RAW images captured with HDR or Pixel Shift Resolution shooting. Develop the RAW images to JPEG images with the camera beforehand and then apply "Astrophoto Image Processing" to them.
- Additional "Astrophoto Image Processing" can be applied to an image to which "Astrophoto Image Processing" has already been applied. However, because it is applied to JPEG images, the image quality may degrade with each image processing. It is recommended to complete all processing at the same time whenever possible.

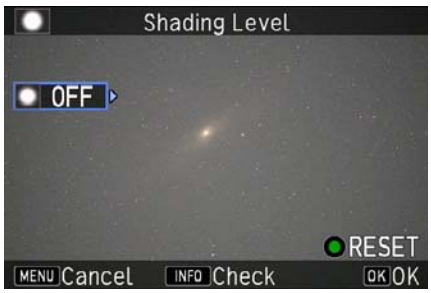
Shading Correction

- "Shading Correction" corrects lens peripheral illumination fall-off.
- By default, [Shading Level] is set to OFF (no correction) on the shading correction setting screen. The shading level can be set in 11 levels, including OFF and +1 to +10. The larger the value, the stronger the correction.

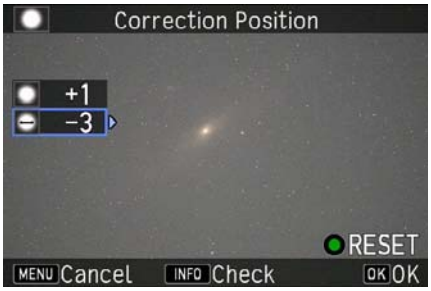
OFF (no correction) +5 +10

Shading correction (images after correction)

- When the shading level is set to anything other than OFF, the [Correction Position] parameter for configuring the correction position appears.

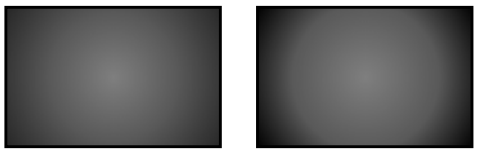


Shading level selection screen



Upper: Shading level
Lower: Correction position

- The correction position can be set in 7 levels of -3 to +3. If a negative value is set, peripheral illumination fall-off correction is applied gradually from the center. If a positive value is set, steep peripheral illumination fall-off correction is applied outside the frame.



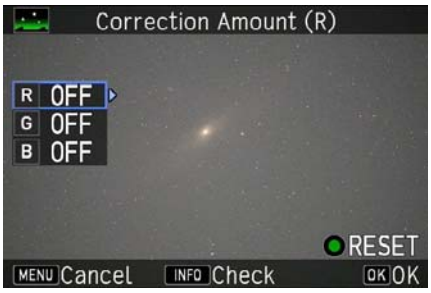
-3 +3

Correction position
(images of correction target)

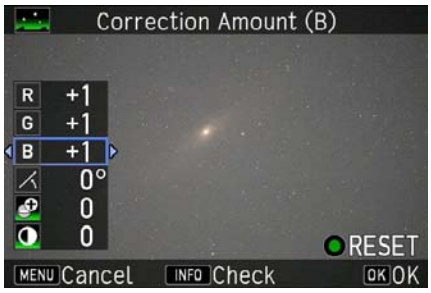
Astrophoto Image Processing

Uneven Correction

- "Uneven Correction" corrects the color casts and uneven brightness caused by light pollution, etc.
- The uneven correction amount can be set for each color (R: red, G: green, B: blue). By default, the correction amount is set to OFF (no correction) for all colors.
- The correction amount can be set in 21 levels, including OFF and +1 to +20. The larger the value, the stronger the color cast correction for that particular color. (For example, if a large correction value is set for green, the green color cast is corrected.)
- When a uniform correction value is set for each color, the image brightness is corrected. (For example, the brightened areas near the horizon due to terrestrial light, etc.are corrected.)
- When the correction amount for any one or more colors is set to +1 to +20, the [Angle], [Highlight Level], and [Uneven Contrast] parameters appear.

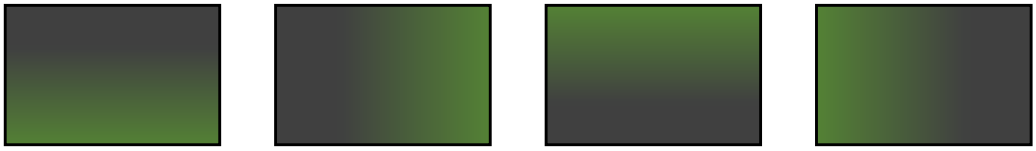


Uneven correction setting screen (no correction)



Uneven correction setting screen (brightness correction)

- "Angle" sets the direction of uneven correction. When the angle is set to 0˚, 90˚, 180˚, or 270˚, the bottom, right, top, or left side of the screen is corrected, respectively. (If [Highlight Level] is set to 0, correction is applied symmetrically, so the same results are achieved for 0˚ and 180˚, and for 90˚ and 270˚.)



0˚ 90˚ 180˚ 270˚

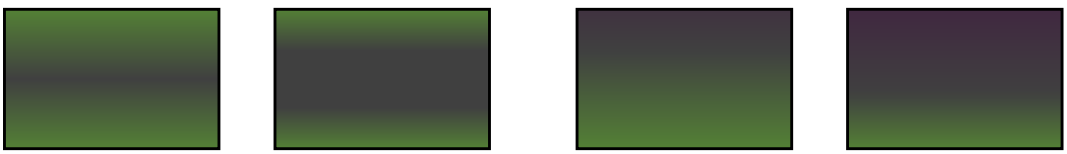
Correction direction for green color cast (when [Highlight Level] is set to +5)

- "Highlight Level" sets the bias of uneven correction in 6 levels of 0 to +5. If it is set to 0, the correction is unbiased. The correction is applied equally to the top and bottom or to the left and right. The larger the highlight level value, the stronger the correction applied in the direction set in [Angle]. On the other hand, a negative correction value is applied to the opposite side of the direction set in [Angle]. (For example, if a large correction value is set for green (G), the green correction is applied in the direction set in [Angle], and magenta correction (complementary color for green) is applied in the opposite direction.)

0 +3 +5

Example of [Highlight Level] (when [Angle] is set to 0˚)

- "Uneven Contrast" adjusts the uneven correction sharpness (R: red, G: green, B: blue). This can be set in 7 levels of -3 to +3. Setting a negative value weakens the contrast, applying correction from the inside of the frame, whereas setting a positive value strengthens the contrast, applying stronger correction outside the frame.



Negative value Positive value

Example of [Uneven Contrast] (when [Angle] is set to 0˚ and [Highlight Level] is set to 0)

Negative value Positive value

Example of [Uneven Contrast] (when [Angle] is set to 0˚ and [Highlight Level] is set to +5)

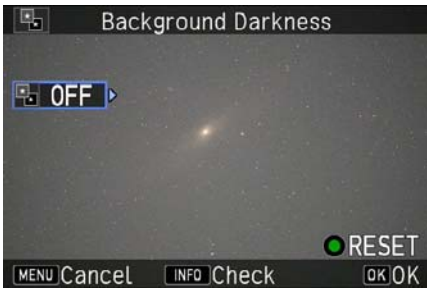
Reference

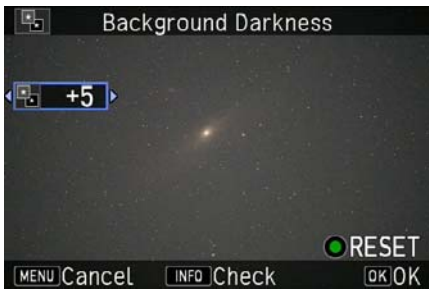
- If you experience a green color cast as shown in the figures above, it can be corrected by setting the correction amount for green (G). If you experience a yellow color cast, it can be corrected by applying the same correction amount for red (R) and green (G).

Astrophoto Image Processing

Background Darkness

- "Background Darkness" corrects backgrounds other than stars that appear white in astrophotography.
- The correction amount can be set in 21 levels, including OFF (no correction) and +1 to +20. The larger the value, the darker the background.



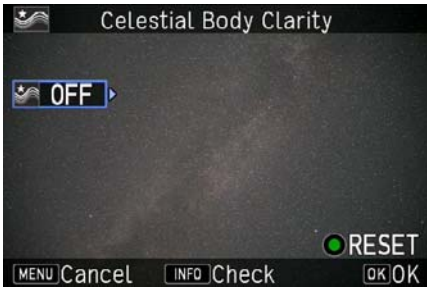


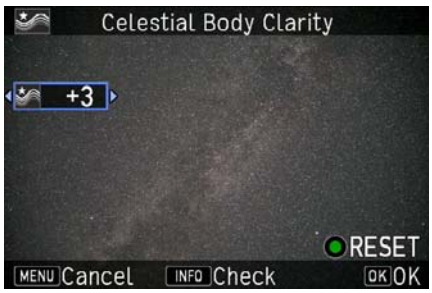
Star Brightness

- "Star Brightness" adjusts the brightness of stars (bright sections) in astrophotography.
- The correction amount can be set in 6 levels, including OFF (no correction) and +1 to +5. The larger the value, the brighter the stars.
- Because this process brightens bright sections, the effects can be easier to obtain by sufficiently darkening the background with [Background Darkness] in advance.

Celestial Body Clarity

- "Celestial Body Clarity" adjusts the contrast of faint celestial bodies such as the Milky Way, nebulae, and other parts of the galaxy for greater sharpness.
- The correction amount can be set in 6 levels, including OFF (no correction) and +1 to +5. The larger the value, the greater the clarity.





Color Fringe Correction

- "Color Fringe Correction" reduces color bleeding around stars that occurs due to chromatic aberration.
- For the color fringe correction, the color and color level can be set, or OFF (no correction) can be selected. The color can be selected from 6 colors including red, magenta, blue, cyan, green, and yellow, and the color level can be set in 5 levels of +1 to +5. For the color level, the larger the value, the greater the correction.
- For the color fringe correction, two colors can be corrected simultaneously. (The effect is the same even when the same color is set.)
- Because the color fringe correction corrects the color around stars (bright points), the impact on flat sections such as the background is minimal, however, stronger correction can result in faded background colors.
- The results of color fringe correction cannot be checked on the screen.